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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/050,476	01/15/2002	Lixiao Wang	1001.1445101	6164

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EXAMINER

GILBERT, ANDREW M

ART UNIT	PAPER NUMBER
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3767

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/050,476	<b>Applicant(s)</b> WANG ET AL. ✓	
	<b>Examiner</b> Andrew M. Gilbert	<b>Art Unit</b> 3767	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12, 16-19 and 21-23 is/are pending in the application.
- 4a) Of the above claim(s) 18 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12, 16, 17 and 21-23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Acknowledgments***

1. This office action is in response to the reply filed on 3/27/2006. Claims 1-8, 10-12, 16, 17-19, and 21-23 are pending. Claims 18-19 have been previously withdrawn. Claims 9, 13-15, 20, and 24-32 have been previously cancelled.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8, 10-12, 16-17, and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peters et al (5549552) in view of Ichinose et al (5681402). In reference to claims 1-5, Peters et al discloses a medical balloon catheter device (Figs 2) having a metallic hypotube (33), a polymeric tubular member (34) disposed over at least a portion of the metallic hypotube forming a lap joint (Fig 2; col 7, lns 14-23), a coupling adhesive agent disposed between the metallic hypotube and the polymeric tubular member within the lap joint (col 7, lns 14-23), where the polymeric tube is disposed on the outside of the metallic hypotube (Fig 3A), and the polymeric tube is disposed on the inside of the metallic hypotube (Fig 3B). However, Peters et al does not disclose that the coupling agent is a functionalized titanate. Ichinose et al teaches that it is known to have titanate derivatives used as coupling agents for the purpose of providing high adhesive strength between inorganic metal material and organic polymer coating layers

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in high temperature and humidity environments (col 13, Ins 7-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the coupling agent as taught by Peters et al with the titanate derivative coupling agent as taught by Ichinose et al for the purpose of providing high adhesive strength between inorganic metal material and organic polymer coating layers in high temperature and humidity environments.

4. In reference to claims 6-8, Peters et al and Ichinose et al disclose the invention substantially as claimed except for expressly disclose that the coupling agent is in liquid, paste, or powder form. At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have the coupling agent be a liquid, paste, or powder form because the Applicant has not disclosed that the coupling agent being in liquid, paste, or powder form provides an advantage, is used for a particular purpose, or solves a stated problem. Furthermore, one of ordinary skill in the art would have expected the Applicants invention to perform equally well with coupling agent of Peters et al and Ichinose et al because the coupling agent performs the same function as bonding a metallic and polymeric surface together. Therefore, it would have been an obvious matter of design choice to modify the coupling agent of Peters et al and Ichinose et al to obtain the invention as specified in claims 6-8.

5. In reference to claims 16-17, Peters et al discloses the invention substantially as claimed except for a functionalized titanate coupling agent having a first functional group providing bonding adhesion to the metallic member and a second functional group providing bonding adhesion to the polymeric member with one of the groups

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being hydrolyzable. Ichinose et al further teaches that it is known to have a functionalized titanate derivative coupling agent having a first functional group providing a hydrophilic portion with bonding adhesion to the metallic member and a second functional group with organic functional group portion providing bonding adhesion to the polymeric member for the purpose of controlling the surface between the metallic and polymer to firmly couple the two together (col 13, lns 7-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the coupling agent as taught by Peters et al with the functionalized titanate coupling agent as taught by Ichinose et al for the purpose of controlling the surface between the metallic and polymer to firmly couple the two together.

6. In reference to claims 10-12 and 21-23. Peters et al and Ichinose et al disclose the invention substantially as claimed except for expressly disclosing that the functionalized titanate is LICA-38, LICA-44, or LICA-97 (chemical trade name used). At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to have the functionalized titanate be LICA-38, LICA-44, or LICA-97 because the Applicant has not disclosed that having the functionalized titanate be LICA-38, LICA-44, or LICA-97 provides an advantage, is used for a particular purpose, or solves a stated problem. Furthermore, one of ordinary skill in the art would have expected the Applicants' invention to perform equally well with functionalized titanate of Peters et al and Ichinose et al because the functionalized titanate performs the same function of bonding a metallic and polymeric surface together. Therefore, it would have been an obvious matter of design choice to modify

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Peters et al and Ichinose et al to obtain the invention as specified in claims 10-12 and 21-23.

***Response to Arguments***

7. Applicant's arguments filed 3/27/2006 have been fully considered but they are not persuasive.

8. Applicant argues that one of ordinary skill in the art would not be motivated to combine Peters et al and Ichinose et al because:

- "neither reference contains, either explicitly or implicitly, a suggestion or motivation to combine" pg 6, paragraph 3.
- "the nature of the problem to be solved is so different between Peters and Ichinose ... that one of ordinary skill in the art would not be motivated to combine these references" pg 7, paragraph 1.
- "Ichinose and the current invention are in non-analogous art areas ... references from non-analogous art areas cannot be used to render a claim obvious" pg 7, paragraph 3.

9. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, one of ordinary

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skill in the art would be motivated to make the proposed combination of primary and secondary references because Peters discloses a balloon dilation catheter with an proximal and distal inner tube that can be attached by various methods such as using a suitable medical grade adhesive to secure a lap joint between the outside of metallic hypotube and a polymeric tube disposed on the outside of the metallic hypotube (see discussion above). However, Peters does not disclose using a functionalized titanate as a coupling agent. Ichinose teaches that is known to have titanate derivatives used as coupling agents for the purpose of providing high adhesive strength between inorganic metal materials and organic polymer coating layers in high temperature and humidity environments (col 13, Ins 7-45). Ichinose discloses "the coupling agent acts as a go-between between a combination of an inorganic material (metal) and an organic material (polymer in conductive adhesive) and the two materials are firmly combined" (col 13, Ins 37-40). The teaching of Ichinose is directed towards improvements in the adhesive strength via coupling agents, such as titanate derivatives, consisting of hydrophilic portions which have an affinity with inorganic material and an organic functional group which has an affinity with organic material (col 13, Ins 28-33). The use of the coupling agent in Ichinose is not solely directed to the attachment of a collecting electrode to a photovoltaic element substrate as the Applicant cites (pg 8, paragraph 1) as Ichinose teaches that the elements can be organic and inorganic materials. Additionally, Ichinose teaches that the enhanced adhesive strength that results by use of the disclosed coupling agents is maintained at high temperature/humidity environments (col 13, Ins 20-23). The environment of use of the Applicant's invention is

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inside the human body and the human body can be categorized as a high temperature/humid environment. Thus, the Examiner finds that Peters and Ichinose contain motivation to combine the references to form a high adhesive strength bonding between a metallic tubular member and a polymeric tubular member via a coupling agent that can function in the environment of the human body.

10. In response to applicant's argument that Ichinose is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Ichinose is reasonably pertinent to the particular problem with which the Applicant is concerned, namely to form a bond between an organic material, ie – a polymer, and an inorganic material, ie – a metal hypotube. Ichinose discloses "the coupling agent acts as a go-between between a combination of an inorganic material (metal) and an organic material (polymer in conductive adhesive) and the two materials are firmly combined" (col 13, lns 37-40). The teaching of Ichinose is directed towards improvements in the adhesive strength via coupling agents, such as titanate derivatives, consisting of hydrophilic portions which have an affinity with inorganic material and an organic functional group which has an affinity with organic material (col 13, lns 28-33). The use of the coupling agent in Ichinose is not solely directed to the attachment of a collecting electrode to a photovoltaic element substrate as the Applicant cites (pg 8, paragraph 1) as Ichinose teaches that the elements can be organic and inorganic



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materials. Additionally, Ichinose teaches that the enhanced adhesive strength that results by use of the disclosed coupling agents is maintained at high temperature/humidity environments (col 13, lns 20-23). The environment of use of the Applicant's invention is inside the human body and the human body can be categorized as a high temperature/humid environment. Thus, the Examiner finds that Ichinose is reasonably pertinent to the particular problem with which the Applicant was concerned of bonding a metallic tubular member to a polymeric tubular member via a coupling agent that can function in the environment of the human body.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew M. Gilbert whose telephone number is (571)

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272-7216. The examiner can normally be reached on 8:30 am to 5:00 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Hayes can be reached on (571)272-4959. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Andrew Gilbert



MICHAEL J. HAYES  
PRIMARY EXAMINER